AMENDMENTS TO THE CLAIMS

Kindly amend the claims as follows:

1-14. (Cancelled)

15. (Currently amended) A method for transmitting voice and data signals simultaneously over a telephone subscriber wire pair, the method comprises:

converting at least one voice signal into a corresponding sequence of n-bit digital words in synchronization with a discrete multi-tone (DMT) line signal, where n is an integer;

assigning for voice transmission a portion of a plurality of carriers, each carrier in said portion being characterized by the ability to transmit a number of bits equal to or larger than n per Quadrature Amplitude Modulation (QAM) symbol,

assigning other carriers of the DMT line signal for data transmission;

converting said sequence of n-bit digital words into at least one sequence of n-bit QAM symbols where each QAM symbol has a real component constituted of odd bits of said n-bit digital words and an imaginary component constituted of even bits of said n-bit digital words; and

sending said at least one sequence of QAM symbols in synchronization with said sequence of n-bit digital words on respective carriers assigned for voice transmission.

16. (Currently amended) A method according to claim 15 and comprising reassigning several carriers of said assigned portion of other carriers for data conveyance when the respective voice channels are identified as silent.

17. (Previously presented) A method according to claim 15 and wherein said n-bit digital words and said n-bit QAM symbols are 8-bit integers respectively.

18. (Currently amended) A method according to claim 15 and comprising converting said at least one voice signal to a respective sequence of n-bit digital words by Pulse Code Modulation (PCM) encoding.

19. (Previously presented) A method according to claim 15 and comprising associating said at least one voice signal with at least one respective telephone channel in analog or in digital form.

20. (Currently amended) A method according to claim 15 and comprising reassigning several carriers of said assigned portion of <u>other</u> carriers for data carrying when the respective telephone channels are identified as silent.

21. (Currently amended) A transmitter for a communication system which conveys voice signals and digital data over a telephone subscriber line, the transmitter comprising:

at least one converter connectable to a corresponding external voice signal source for converting said voice signal into at least one sequence of n-bit digital words, <u>where n is an integer</u>;

an assigner connected to each of said converters configured for assigning a portion of carriers of DMT signal for voice transmission;

a constellation encoder configured for receiving said at least one sequence of n-bit digital words and being configured for modulating said portion of said carriers with at least one sequence of n-bit QAM symbols that correspond to said at least one sequence of n-bit digital words, where each QAM symbol has a real component constituted of odd bits of said n-bit digital words and an imaginary component constituted of even bits of said n-bit digital words;

a synchronizer connected at least to said at least one converter and configured for effecting synchronization between frames of said DMT signal and said sequence of said n-bit digital words; and

a loader configured for conveying said at least one sequence of QAM symbols in synchronization with said sequence of n-bit digital words on respective carriers assigned for voice transmission.

22. (Previously presented) A transmitter according to claim 21 wherein said n-bit digital words are n-bit PCM words.

23. (Previously presented) A transmitter according to claim 21 and comprising a processor configured for analyzing said voice signal and a carrier allocator connected to said processor and configured to receive instructions from said processor to reassign carriers formerly assigned to voice transmission to data transmission when said processor identifies the corresponding voice channel as being silent.

24. (Previously presented) A transmitter according to claim 21 wherein said subscriber line is a twisted wire pair.

25. (Previously presented) A transmitter according to claim 22 wherein a plurality of voice interface ports are connected to a corresponding number of PCM encoders, and wherein a PCM concentrator is connected to said PCM encoders and to said assigner.

26. (Previously presented) A transmitter according to claim 21 and comprising a processor configured for analyzing telephone control signals and a carrier allocator connected to said processor and configured to receive instructions from said processor to reassign carriers formerly assigned to voice transmission to data transmission when said processor identifies the corresponding telephone channel as being silent.

27. (Previously presented) A transmitter according to claim 22 and comprising a PCM voice interface port that is connected to external PCM telephone channel equipment of a telephone station, to said assigner and to said synchronizer for synchronizing said DMT frames with said at least one sequence of n-bit digital words of said external PCM telephone channel equipment.